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ABSTRACT

Papers on interlibrary lending which were presented at the 1982 International Federation of Library Associations (IFLA) conference include: (1) "Inter-Library Loan Service of the National Library of China," a description by Huang Jungui and Zhao Qikang (People's Republic of China) of the history, organization, purposes, and possible future enhancements of interlibrary loan services at the National Library of China; (2) "Core Collections of Journals for National Interlending Purposes," a review by Maurice Line and Brian Kefford (United Kingdom) of the general characteristics of core collections, the optimal means of identifying core lists of journals, and the development and maintenance of core collections, drawing on data and studies from the British Library Lending Division; and (3) "Interlibrary Lending Network Planning in Canada," a discussion by Hope E. A. Clement (Canada) of interlibrary lending in the evolving, decentralized, open Canadian library network situation, with a description of Canadian geographical, political, and cultural features which affect interlending, and current and future planning mechanisms. (ESR)

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INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS

Interlending Section

Collections and Services Division

Papers

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IFLA GENERAL CONFERENCE, MONTREAL 1982

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INTER-LIBRARY LOAN SERVICE OF THE NATIONAL LIBRARY OF CHINA

by

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INTER-LIBRARY LOAN SERVICE OF THE NATIONAL LIBRARY OF CHINA

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I

Changes with each passing day of the modern scientific and technological development are bound to be followed by an unprecedented amount of achievements in science and technology. As a result of this, information documents which give expression to those achievements increase rapidly. It is simply impossible for a library to collect a complete set of stock of any given subject. It will have to seek the aid of other libraries, and supplement the library holdings by means of inter-library loan service. In the meantime, owing to the development of science and technology and the increasingly wider range of tasks of scientific research, information documents of a single library would not be able to fully meet the users' demands in quantity. The inter-library loan service plays an extremely important role in bringing about the resource-sharing among libraries, increasing the reading rate, reducing the refuse rate, expanding circulation, attracting new users and better fulfilling the library's social functions.

The inter-library loan service in China originated in the National Library of Peiping (the former National Library of China). The Library started the service in 1927, and in the early 30s, thirty of the libraries in Peiping developed the inter-library loan relations among themselves and with some other related agencies such as Nan Kai University in Tianjin, Jin Ling(Nanking) University, the Library of Chinese National

Literature, the Central Institute for Research in Shanghai, Wen Hua College for Library Science in Wuhan as well as some government organizations. However, because of the continuous wars and the underdeveloped economy from 1937 to 1949, the development of library work in China suffered a great damage and the inter-library loan service came to standstill. The inter-library loan service during this period lacked satisfactory regulations and rules, still more, the loan service had not formed itself into a system yet, with a very limited scope of service and a very small quantity of books for lending. Loan service, on the whole, found itself merely in an initial stage.

In the early part of the 50s, China entered into a stage of peaceful construction. The constant growth in all aspects of production and construction, culture and education as well as scientific research, all required the libraries to further perform their functions, thus the inter-library loan service had made a great progress. The National Library of Beijing (the National Library of China) in 1956 had already established interlending relations with 240 libraries and had lent out 95,346 volumes that year. With the public libraries as the main bodies, China established in 1957 the First and the Second National Central Libraries (the National Library of Beijing and the Library of Shanghai) and also the Regional Central Libraries (provincial and autonomous prefectural libraries), on the basis of which a interlending system was preliminarily formed. Nevertheless, the "Cultural Revolution" with its ten-year great calamity made this work run up against a series of setbacks, no matter how good a foundation it had laid. In 1975, we only had a loan of books and periodicals of 52,829 volumes, which was a decrease of 8% in number, compared to those of 1956, and among them there were only 2,378 volumes sent by mail. After 1976, with the favourable turn of the country's political and economic situations, the inter-library

loan service has regained its vitality step by step. At the moment, the National Library of China has established inter-lending relations at home with 814 provincial and municipal public libraries, libraries of scientific research institutes, production units, and college and university libraries. It has also established international lending relations with more than 30 countries such as Korea, Romania, France, etc. In 1981, a loan of 112,273 volumes of books and periodicals had been made, an increase of 12% in number, compared to those of 1965.

II

China is a country with a vast territory and a very large population. Thus, the organizational system of libraries and information agencies is of a somewhat complex nature. The libraries may be grouped in the light of the organizational framework of library work into the following catagories of systems: cultural departments of various levels of governments, Academy of Sciences, colleges and universities (higher educational institutions), important institutions and enterprises and trade unions. The national interlending system is, on the one hand, organized on the basis of library systems of public libraries (cultural departments), Academy of Sciences libraries, and college and university libraries; on the other hand, various kinds of coordinated local library organizations are established to develope the inter-library loan service in provinces, cities and prefectures throughout the country, but priority is given to the latter. These interlending systems of different types are also related to the information agencies to a certain extent.

The National Library of China, the libraries attached to the national interlending systems of different types and the information agencies have consistently followed these principles: to participate on a voluntary basis, to proceed from the near

to the far and to combine the interlending with the unilateral lending, i.e. each library and each information agency according to its own need and possibility may determine all by itself whether it will jion the interlending activities or nct; the inter-library loan service will first be carried out within the locality or the neighbouring areas, until this service is extended to the National Library; libraries having interlending relations with other libraries should, in general, lend to and borrow from each other, but reciprocity in not necessarily required. For libraries with less substantial holdings, unilateral lending is allowed, only that they should abserve the system's regulations and rules.

Union catalogues are prepared by the National Library of China and the Regional Central Libraries, while carrying out the interlending activities. Catalogues already compiled include full-length bibliographies such as "National Union Catalogue of Chinese Periodicals", "National Union Catalogue of Periodicals in Western Languages", "National Union Catalogue of Ancient Chinese Books on Agriculture", "Comprehensive Bibliography of Chinese Serial Publications", "Bulletin of the National Union Catalogue for Books in Western Languages Newly Received", "Union Catalogue for Books in Western Languages on Industrial Technology", etc. Besides, there are also bibliographies on special Subjects, e.g. regional industry and agriculture, local chronicles and literature, works of individual authors, periodicals or bulletins of publications newly received.

In respect to the coordination of acquisition, the National Library of China has also made some achievements. Among those main libraries situated in the Beijing area, for example, the National Library is designated to have an overall acquisition, while the patent literature, standards and technical reports which are assigned to the Scientific and Technical Information Institute of China are not the focal points for its acquisition; the Chinese Academy of Sciences put the stress on materials on mathematics, physics, chemistry, astronomy, geology and biology

while the Chinese Academy of Medical Science is responsible for a complete acquisition of materials on medical science.

In spite of all this, owing to the acquisition budget and some other reasons, Regional Central Libraries in general, with the exception of the National Library, fail to play the part as library stock centres. More often than not, holdings of the college and university libraries or libraries under the Academy of Sciences are more comprehensive and abundant than those of the provincial (municipal) and prefectural libraries. In addition, member libraries of the regional systems are not yet able at present to provide each other with materials of their own special collections respectively, thus the formation of a union library collection for the purpose of reference and lending has not yet been built up. In that case, some of the libraries attached to the regional interlending systems cannot but directly get in touch with the National Library in order to develop the inter-library loan service, as they are unable to obtain what they need nearby. Moreover, libraries of other types which have not joined the regional systems generally turn directly to the National Library for help when the provincial (municipal) and prefectural public libraries fail to satisfy their needs.

The crucial role played by the National Library in the interlending system for the purpose of achieving resource-sharing throughout the country comprises the following:

1. To collect comprehensively both Chinese and foreign books and periodicals covering every sphere of learning, to accept statutory depository copies from all the domestic publishers, and in the respect of acquisition programme, try hard to coordinate with other libraries and information agencies, so as to enable the Library to become the national library collection centre;
2. To strive to promote documentation standardization, adopt

centralized cataloguing, compile national union catalogues, provide bibliographical information to industrial and scientific research workers, so as to make the Library known as the national bibliographic centre;

3. To offer service to both Chinese and foreign users through different ways of lending, or through master copy duplication and microform reproduction, so to make the Library also the national interlending centre.

III

In order to resolve properly the contradiction existing between the limited book resources and the extensive needs of the users, inter-library loan service of the National Library of China aims to provide what scientific research and production and construction are most needed but not at satisfying the general demands of readers. Because the inter-library loan service has to have many and diverse administrative formalities, in addition, certain book stock base and other material conditions are required, therefore, the work should be done with a definite purpose and a feasible plan, and as a matter of fact, requests of the general readers can be easily solved by ordinary libraries. Thus, in the loan service rendered to the different borrowing parties, we adopt the principle of ensuring meeting the major needs of the important ones and doing what could be done for the ordinary ones. "Ensuring meeting the major needs" means that priority is given to the loan of books needed, relaxing considerably the restrictions placed on book-borrowing and increasing the number of volumes to be borrowed as far as possible. As for the selection of important borrowing parties: one group includes the country's major units of production and construction, scientific research institutes and colleges and universities; another group includes the country's key construction, production and scientific research projects. Once any borrowing party is selected to be included for sure in the first group, it will be among the long-term focal points

of service; whileas the latter group will, in general, be treated as short-term or provisional users, and as soon as any of the construction project or the scientific research task is concluded, the priority service will be withdrawn.

The sole purpose of the inter-library loan service of the National Library is to meet the users' needs actively. In respect of books, periodicals and other materials for interlending, the National Library, on the whole, makes the widest possible lending to users the master copies or reproductions and microforms of them, not including rare books and unique copies. In view of the urgency of most loan requests, of the vastness of the country's territories, and of the poor transport in some areas, the Library set as part of the criteria for judging the quality of inter-library loan service, the speed for the loaned materials to reach the borrowers. The National Library of China devotes much attention to timeliness. 90% of the applications for books will surely be dealt with on the same day when they are received. Those who are responsible for this work are asked to have the work done without making mistakes, and to let the applicants receive either the books or the replies telling the reasons of refusal about ten days after an application was sent. The National Library of China enjoys high prestige in the national interlending system for its rapidity and preciseness.

To collect the effects of their services is also a feature of the inter-library loan service of the National Library. As mentioned above, the inter-library loan service aims to provide services to scientific research and production. Most of the libraries, with the desire to serve the readers and holding themselves responsible to the users, when mailing the books to the applicants, have a sheet of reading record enclosed herewith, asking the readers to fill in the form with informations on the effects of the books they have just made use of, and at the same time, to make comments or suggestions and demands.

Some of the libraries, on their own initiative, make some social investigations, collect the readers comments and the effects of their service. The measure adopted, being extensively supported and welcomed by the readers who regard it a good method for strengthening the ties between libraries and readers, for improving book acquisition, for raising the quality of library collection and making the work well-done, not only can provide materials in accordance with what the readers need, but also makes it easy for the libraries to know well the regular pattern of the inter-library loan service.

IV

One of the important tasks of national libraries is to enhance the inter-library loan service. The National Library of China and other libraries and information agencies in the country, at the moment, need to take further steps to improve the rules and regulations of inter-library loan service. Taking the ways and means for establishing interlending relations between libraries as an example, there are usually three: (1) one-sided applications; (2) both-sided consultations; (3) stipulated unified form. The former two have to be accomplished through correspondence and then making contracts or concluding conventions. These two methods have gradually become obsolete because of their tedious formalities and the inconvenient file management. The "stipulated unified form" method is adopted now in order to have formalities simplified, i.e. with reference to the general application form of IFLA, we have unified our application form, and prepared a triplicate form, to be provided free of charge to libraries applying for loan of books. It has been well received because it is convenient to readers and it helps to improve working efficiency. Moreover, it offers facilities for participating in international lending activities. And, in the aspect of promoting a national uniform interlending system, it is playing a positive role.

To strengthen the compilation and management of bibliographies is an important factor for developing inter-library loan service, so as to carry out resource-sharing among libraries. In recent years, in spite of that the National Union Catalogue Section under the National Library of China has resumed its activities and the Regional Central Libraries Committees have also prepared some bibliographies and indexes, still it is far from meeting the needs of the work. For a long time, libraries in China have paid more attention to making card catalogues than making the book-form retrospective bibliography for the library collection, and it has been a common thing that the entry and classification are not uniformly made. The acquisition, processing and circulation of bibliographical materials have been more or less neglected. For the sake of familiarizing with the interlending libraries' collection situation, so as to develop the work smoothly, one should first of all improve the catalogues of the library collection, on which the other types of catalogues are based. And on this basis, libraries should at the same time have the work of exchanging catalogues well-done and place the catalogues of library collection and the union catalogues of other libraries into their catalogue systems. All these catalogues must be handled scientifically so that their functions could be brought into full play.

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CORE COLLECTIONS OF JOURNALS FOR NATIONAL INTERLENDING PURPOSES

by

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CORE COLLECTIONS OF JOURNALS FOR NATIONAL INTERLENDING PURPOSES

Brian Kefford and Maurice B Line

When interlending systems are planned at the national level, a well-organized and efficiently managed single centralized collection will offer better service, in terms of satisfaction rate and speed of supply, than decentralized systems relying on the resources of a number of libraries.[1] A system of centralized provision also makes it much easier to monitor demand, and is simpler to use. However, good centralized systems are often hard to implement. Unless demand is heavy - at least one million requests a year - unit costs of extensive central collections are unacceptably high[2]. For this reason if for no other, few countries have considered central loan/photocopy collections.

Countries do not however need to choose between total centralization and total decentralization, and in most cases a balance should be sought. The optimum balance will depend largely on the volume of demand: the greater the demand, the more the cost of extensive central provision is justified. It will depend also upon the degree to which demand is concentrated on a limited range and amount of literature; with a fair degree of concentration, a limited and well selected collection can satisfy a significant proportion of demand quickly and at reasonable cost.

Journals are particularly suitable for central provision[3] Obviously there will be variations between countries in the kind of material most in demand. Developing countries may have a greater demand for textbooks, which contain established knowledge in a compact and often readily usable form, than for journals, which tend to be concerned with developments at the frontiers of knowledge. In most developed countries much heavier use is made of journals,[4,5,6] and unless local libraries are exceptionally well stocked many journal articles that users require will have to be obtained from elsewhere.

Quite apart from the fact that journals account for a large amount of demand, they are specially suited to central loan collections, for several other reasons. Acquisition and recording processes for journals are usually simpler (and therefore cheaper) than for most other forms of material. Most requests for journal articles can be supplied in the form of photocopies; this saves money on postage and keeps the original issues available for further requests. Most 'serious' journals are in science and technology, where the need for speed of supply is greatest. A high proportion of demand for journals tends to fall on a relatively limited number of titles, although here too there will be differences between countries. Current and past use is generally a good indicator of future use.[7]

It is assumed for the purposes of the present paper that any central collection would be of the journals in most demand, if

only because the unit costs of providing journals in low demand would be extremely high.

It is the concentration of demand of high-use journals and the possibility of identifying titles for inclusion in a central collection that make core collections of journals for interlending purposes such an attractive concept.

Because the British Library Lending Division receives three quarters of all interlending demand in the UK, including 90% of demand for journals,[5] and because total British interlending demand is very heavy, the Lending Division is in a good position to collect information on demand and its concentration. Indeed, no comparable data are available for any other country. A study showed that out of a total of 54,000 current titles held by the Lending Division (plus 96,000 that have ceased publication), some 12,500 accounted for 90% of all demand for serials, 7,500 for 80% and 2,000 for 50%[8]. These proportions cannot be generalized to all countries, but it is quite probable that similar concentrations would be found in developed countries with reasonable interlibrary lending systems that encouraged demand.

It is not known whether the actual <u>number</u> of titles is more or less valid than the <u>proportion</u> of titles in heavy demand. For example, 7,480 titles constitute 14% of the Lending Division's collection of current journals and 5% of its total collection of journals; if only, say, 30,000 current journals were held, and 90%

of national interlending demand for serials still came to the Lending Division, would 80% of demand fall on 7,500 current titles, as now, or on 4,200 (14% of 30,000)? If the latter, there would be a strong suspicion that demand was being constrained by the smaller collection; and for planning purposes it is better to work on the number rather than the proportion. Since the Lending Division's collection has been built up on the basis of demand and since UK demand is very high, the Lending Division figure is probably a reasonable basis for planning, other things being equal.

Central collections of around 6,000 journals, which would meet some 70% of demand, should be within the reach of most developed countries, and would be particularly useful where demand is high but other factors preclude the setting up of a comprehensive central collection. Smaller collections of 2,000 - 3,000 titles (meeting 50% or more of demand) could be established in developing countries that had reached the stage where resources could support something more than local collections; indeed, they might well form the nucleus of the national library.

There is little doubt that central loan collections of core journals would benefit libraries and users in many countries, and that they could be justified economically in national terms. To translate this concept into practice, methods are required for identifying the journals that should be included in the collections of various countries. Some countries may have data

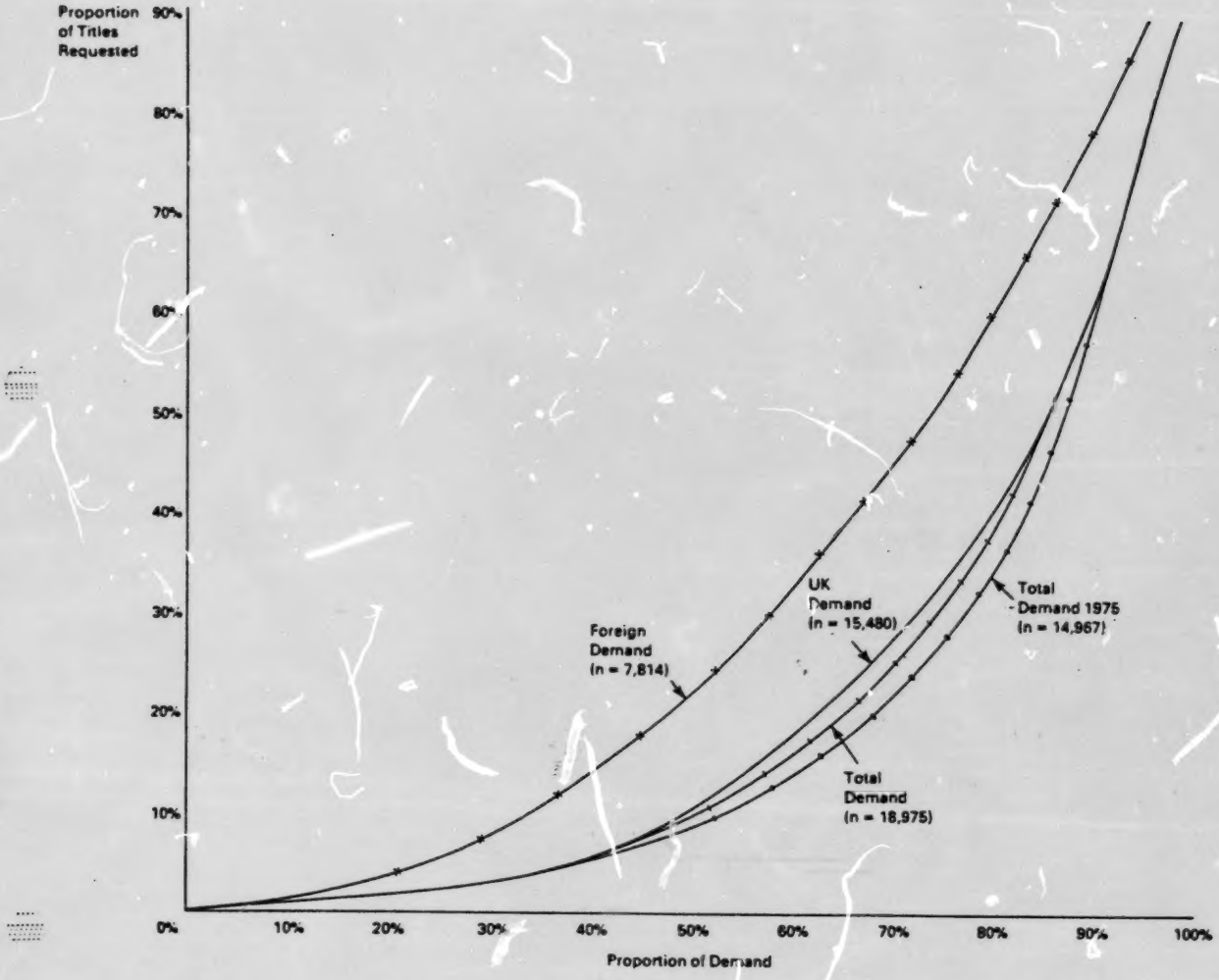

Figure 1
Concentration of demand for serials at the British Library Lending Division in 1980

available on current interlending that will provide a reliable basis for selection. Others may have to rely on data of various kinds from other countries, and it was suggested within the IFLA Section on Interlending that some sort of international core list of journals that are universally in interlibrary loan demand could possibly be compiled. It was therefore necessary to examine how successfully lists might be transferred between countries. Moreover the consistency of core lists over time required examination; if patterns of demand for journal titles change quickly then collections might be set up on the basis of information that is already out of date. Before tackling these problems, however, possible sources of data for the setting up of collections need to be considered.

Data may be available within countries from a number of different sources. What is ideally required is the number of <u>potential</u> interloan requests for individual journal titles, but this is impossible to ascertain. Actual current demand for individual titles might or might not be a good alternative. Figures for different titles might be subject to considerable change in countries where demand was being constrained at present, and anyway it is unlikely that many libraries will have data on demand for individual titles, let alone that an aggregate collection of such data can be made. Even sample surveys are unlikely to produce adequate data.

Other sources of data therefore need to be considered. These include known demand in other comparable countries (possibly amalgamated to reduce national bias) and bibliometric analyses.

If we look at bibliometric methods first, we find that there are a number of different ways of compiling core lists using such methods.[9] A crude method is to rank journals according to the number of articles they contain each year. This relies on the fact that larger journals are often those that receive most use. Circulation (subscription) figures also can provide a crude indication of many of the journals most likely to be in heavy interlibrary loan demand.[10,11] However, circulation figures are not available for all journals, and it would in any case be necessary to exclude popular and some semi-popular journals from the list. A more refined method is to count the number of entries journals are given in major indexing and abstracting services; since these are selective to some extent, the rankings produced by such counts approximate more to quality while maintaining an element of sheer quantity. The fundamental objection to this type of core list is that the coverage of secondary services is based on their policy of inclusiveness or knowledge of relevant journals, not on actual user needs. A further difficulty is that because secondary services vary in their comprehensiveness and selectivity lists in different subjects may not be comparable.

Another way to rank journals is according to the number of times that their articles are cited. Citation analyses have become very

common and rank lists are a frequent product of them. Most of these rank lists are, however, much too short or too specialized to be of much use for national core collections. The longest and most general lists are those produced by the Institute for Scientific Information in the USA. However, even the ISI lists are not very long (about 5,000 titles in 1980) and since only one citation a year qualifies a journal for inclusion in the lists the number that could be considered core journals will be much smaller.

It could be argued that bibliometric methods of producing core lists are more internationally based than lists of known demand in individual countries. However, lists based on the size and/or quality of journals or on citation analyses are likely to show a bias towards developed countries with advanced publishing sectors; and even the Science Citation Index has been shown to be quite heavily biased towards English language journals.[12] Moreover, lists based on citation analyses may not be valid for present purposes at all. The precise relationship of citation to use is a matter of much dispute,[13] and a close relationship to interlibrary loan demand can certainly not be assumed.

Comparison is possible between rank lists based on article counts or citation analysis and the rank lists of known demand at the British Library Lending Division. Rank order correlations are not the best method of testing similarity for present purposes, since the overlap of the contents of lists (rather than the actual order

of journals in them) is of most significance; if, for example, a core collection of 2,000 journals is the objective, the actual order of journals within the collection in terms of use received is of much less practical importance than the titles in the collection; it does not matter if the rank order of two lists is quite different if the contents are much the same. However, rank correlation may have to be used, as here, becuase it is the only practical method available for comparing very long lists of titles, especially where they are not of the same length or subject composition.

In 1976, Scales published the results of her research into comparisons between the SCI list of journals ranked according to citations received 1967-69 and the list of journals in order of use at the National Lending Library for Science and Technology in 1969.[14] The Spearman rank correlation coefficient for the top 50 titles was found to be as low as 0.26; this is not even statistically significant. The coefficient was much lower still (0.002) for the next fifty titles on each list. When simple overlap figures between the lists were calculated, only 16 out of the top 50 titles were common to both lists, and only 41 out of the top 100. This study suggests that core lists based on citation analysis would be a poor guide to the establishment of a core interlending collection; at the best, one might conclude that the top 1,200 in the citation rank list could be safely included in a core collection of 3,000.

As part of the present study the rank order of a core list of journals in the life sciences[15] compiled by counting the number of entries in two major abstracting/indexing services in the field was compared with a rank list of the same journals according to demand for them at the British Library Lending Division. Using the same method as in the Scales study, the Spearman rank correlation coefficient for the top 300 titles on each list was 0.4. This is higher than that found in the comparison with the citation rank list, but it is still not high enough to be useful.

Core lists based on bibliometric analyses are therefore of doubtful value. Lists based on use at individual libraries, even large general libraries, are of less value still, since although they may possibly bear a reasonable relationship to interlibrary loan demand[7] this cannot be assumed; it can only be tested against rank lists of interlending demand, and if these exist they can be used instead.

In theory, a better method would be to use lists based on known interlending demand in one or more countries and to adapt them for use in other countries. In practice such lists are not likely to be available from more than a very few countries, since most have decentralized systems, which present great difficulties in collecting data on demand, especially for individual journals. Some countries have major centres that receive a high proportion of national demand - particularly where one or two centres receive large numbers of requests in science and technology - and these

may be able to provide some useful data. However, the best data currently available again come from studies of journal use at the British Library Lending Division.

Two major studies of journal use at the Lending Division carried out in 1975[16] and 1980[8]. Requests were analysed in order to determine the titles in heaviest demand, their broad subject content, their date of publication, etc. The most important findings concern the number of titles that satisfied different proportions of demand. In both studies a very high concentration of demand on a relatively small number of requested titles was recorded. The 1975 survey showed that 1,350 titles satisfied 50% of UK and foreign demand, and 5,250 titles 80% of demand. A similar concentration of demand on a relatively small proportion of Lending Division stock was found in the 1980 survey. However, the actual number of titles needed to satisfy a certain proportion of demand had risen in 1980, when 2,000 titles were required to satisfy 45% of requests and 7,500 80%. These figures are nearly 45% higher than in 1975, but it has to be remembered that both surveys included foreign as well as British demand on the Lending Division, and foreign demand (some 45% of which was for titles not requested by British borrowers) had increased more than UK demand (from 11.6% of all requests to 18.4%) between the two surveys. The number of titles needed to satisfy 50% of UK demand on the Lending Division in 1980 was 1,616 and 80% was satisfied by 6,233 titles; comparable figures, excluding foreign demand, are not available for 1975. Various factors may have contributed to the

increase in scatter between the two surveys: the slight shift in demand from science to social science, the increase in the number of journals currently received by the Lending Division (45,000 in 1975 and 54,000 in 1980, an increase of 20%), and the greater number and spread of references provided by computer retrieval services, notifying users of articles in lesser known journals. Nevertheless the increase in scatter is certainly not great enough to jeopardize the concept of a core collection. However, a comparison of the rank lists from the two surveys suggests caution in their application to core interlending collections, since stability of the contents of core lists over time is important both for selection of a core collection and for its maintenance.

There are a number of difficulties in assessing the overlap between rank lists produced at different times, and these increase with the length of time between analyses. Some journals change their titles, some split and some merge; some journals cease publication altogether and new titles appear. Furthermore, in the present case comparisons have to be made through abbreviated records, some of which have been altered for internal administrative reasons. Finally, the results will be influenced by sampling error. The following figures therefore need to be approached with caution.

Only 55 of the top 100 titles in the 1975 survey were still in the top 100 in 1980. Similarly 55% of the top 2,000 titles in 1975 were still in the top 2,000 in 1980, and only 80% of these were in

the top 5,000. Of the top 5,000 in 1975 52% were still in the top 5,000 in 1980 and 67% in the top 8,000.

It appears that rank lists of journals requested on interlibrary loan are not particularly stable over a period of even five years. Not only have the titles most in demand changed, but there has also been a shift in subject interests. This casts doubt on the possibility of prescribing a core list that would be of practical use in many countries, since the construction of a core collection needs to follow as quickly as possible after the gathering of data, whatever its source, and no country could act as quickly as necessary.

Table 1. Changes in demand for journals at the British Library Lending Division

i. Position in 1980 of top 2,000 titles in 1975

Rank order 1980	No	%	Cumulative %
1- 2,000	1,097	55	55
2,001- 3,000	246	12	67
3,001- 4,000	125	6	73
4,001- 5,000	129	6	80
5,001- 8,000	116	6	86
8,001-18,975	109	5	91
not on list	178	9	100

ii. Position in 1980 of top 5,000 titles in 1975

Rank order 1980	No	%	Cumulative %
1- 5,000	2,591	52	52
5,001- 8,000	770	15	67
8,001-18,975	648	13	80
not on list	991	20	100

Apart from the doubtful stability of lists over time, there are good reasons for suspecting that core lists valid for one country cannot be easily applied to another. There are several factors that are likely to cause variations.

Perhaps the most obvious variable factor between countries is language. Demand for journals within a country will certainly tend to be biased towards journals in the vernacular. For the majority of countries the vernacular is not a language commonly used elsewhere; journals in the vernacular will tend to be indigenously published, often relatively few in number (especially in developing countries), and easy to identify. However, if the vernacular or another official or secondary languge is commonly used in other countries, this could have a considerable influence on the contents of the core collection.

The size of a country's population and the extent to which its own publishing sector has developed will also influence the use of foreign journals. However, English language journals - many of them published in non-English speaking countries - are likely to be in demand in all countries, if only because a substantial proportion (perhaps 40%) of all research journals come from English-speaking countries.

Economic and industrial development can have a considerable effect on the journal needs of different countries. The many journals reporting advanced scientific research in such fields as physics

and chemistry will be largely irrelevant in many developing countries, although nearly all countries will be interested in research in certain fields, eg medicine and agriculture. Even countries at a similar stage of development will have different subject depending on their industrial interests, for example.

The size of typical local library collections available to users within countries might influence the concentration of demand for journals. There is likely to be greater scatter in countries with well endowed local libraries.

The types of library that predominate and the main sources of interlibrary loan demand vary between countries. Academic libraries are likely to be relatively heavy users in any country and the material they request will range widely, by subject and by date. will also influence demand. In countries with a large number of small special libraries (in which demands are often specific and urgent), the concentration of demand will be more concentrated and will be for recent material within a restricted range; it will thus be more easily catered for by a core collection, even if only fairly recently established. A high proportion of requests from public libraries, which usually request more 'low level' material, would increase scatter.

If provision and speed of supply are good, this will encourage requests from users who require documents quickly - documents that are likely to include a high proportion of recent scientific and

technical material, which will show a high concentration on journal titles. Where provision and supply are poor, a higher proportion of requests will be for less urgent material - in the social sciences and humanities, and of a 'lower level' - and this will increase scatter.

The factors I have just described militate against the application of a core list developed in one country to other countries. However, such lists may still constitute a useful basis if used with caution. Their usefulness could be greatly increased if core lists from a number of countries were available for comparison and for the identification of titles in universal demand; but this is not possible at present. If core lists are applied between countries, it would be prudent to make some check on their validity even if this is only against a small sample of data relating to demand in the country in question.

Allowances can be made for both language and subject interests. For lists to be useful in other countries they therefore need to be coded by subject and possibly by language. This should not be too difficult, though it could be tedious. However, the choice between available lists or a combination of them, and the weight to be given to various local factors, will remain very much a matter of judgment in the light of local knowledge.

After all allowances have been made, some direct use can be made of core lists developed in other countries. If, for example, a

country wishes to set up a core collection of 5,000 titles, although the match with the top 5,000 in another country may be poor it is fairly safe to assume that the 2,000 most highly ranked titles in the other country should be included in the 5,000: it does not matter that the ranking of some of them will be much lower so long as it is not lower than 5,000. Likewise, a country setting up a core collection of 2,000 could safely include the top 500 titles from another country's core list.

Once a core collection has been set up, a good policy on collection maintenance is vital. Changes of title, splits and mergers would have to be dealt with. Surveys of use would indicate titles that had fallen into low use and that could be eliminated from the collection (and perhaps some titles where demand is high enough to justify acquisition of duplicate copies), while monitoring of failed requests would indicate extra titles that ought to be subscribed to.

In order to monitor demand effectively, the collection must attract a high proportion of all journal requests in the country. It is important that it receives requests for journals not in its collection as well as those it can satisfy, in order to identify journals that have come to attract sufficient demand to be added to the collection. It is consequently imperative that borrowers can rely on the collection to satisfy at the very least 50% of journal demands. Otherwise use will start low and, owing to lack of information on demand, may well decline. If a core collection

starts from scratch, and is not able to use other collections as a foundation, it will need to collect titles for about five years before it is able to offer a reasonable service. (In developed countries, volumes issued in the last 3 or 4 years account for about half of demand,[8] but the period is probably rather longer in developing countries).

If it is not possible to set up a comprehensive collection sufficient to meet half of all demands, a collection limited to certain subjects might be considered. Any subject limitation will allow a smaller collection to be established, but certain subjects will be more useful (since demand is higher for them anyway) and will show a greater concentration than others. This is so for science and technology, and is especially true of medicine. Concentration is much lower in social sciences or humanities, than in science, technology, agriculture and medicine, partly because journals in these fields vary much more in size, partly because there is a much greater consensus on which of them are the most important. This consensus is even more marked internationally, and this means that core lists for science, technology, agriculture and medicine are more readily applicable between countries. Moreover, because demand in these subject areas falls more heavily on recent journal issues, back runs do not need to be so long.

The relationship of cost to size of core collections is also important. If collections of journals are based on demand with those journals most in demand being acquired first, and additional titles being added according to the volume of demand for them, it is obvious that every additional 1,000 titles will be less 'productive' in terms of use than the previous 1,000 titles. However, each additional 1,000 titles will also be less costly to acquire, because the most heavily requested journals tend to be the largest and most expensive, and the further down the rank order of demand a journal is the lower its average price. Therefore, although demand per journal drops as the collection grows, the unit cost per demand increases relatively slowly. A collection of 4,000 journals might cost only 60% or 70% more than a collection of 2,000, and a collection of 8,000 only 60% or 70% more than one of 4,000. These figures are only rough estimates, based on limited data from the British Library Lending Division. Figure 2 presents a hypothetical relationship of cost to size of a core collection, and Figure 3 a similarly hypothetical picture of unit costs per demand related to size.

The higher costs of the most requested journals could perhaps be used as an argument against core collections, particularly as all or most of these journals, at least in developed countries, will be held by other libraries. However, the difficulty and slowness of access in countries with decentralized provision is one of the main reasons for the current interest in core collections. In any case, although unit costs increase only slowly with increasing

size, for the reasons given above, the unit costs for the most heavily used titles are actually lower than for less requested journals. The hypothetical data on which Figure 3 is based would yield a unit cost of 12.5p per request for the top 1,000 journals and 21.5p for the journals ranked 2,000 - 3,000; and the unit cost for a collection of 7,000 journals is over half as much again as for a collection of 2,000. It would certainly be nonsensical to create a core collection that excluded the most expensive journals.

The above picture is not only hypothetical but much simpliefied: the costs of acquistion are not confined to the purchase price, but include selection, ordering, accessioning, possibly binding, and storage. These other costs, which are substantial, are related not to the cost of the journal but to its frequency, size, country of origin, etc, and they can be as high for a medium-use journal as for a high-use journal. On the other hand, there will be increasing economies of scale with increasing size and demand, at least up to a certain point, and these may partly cancel out the increased non-purchase costs.

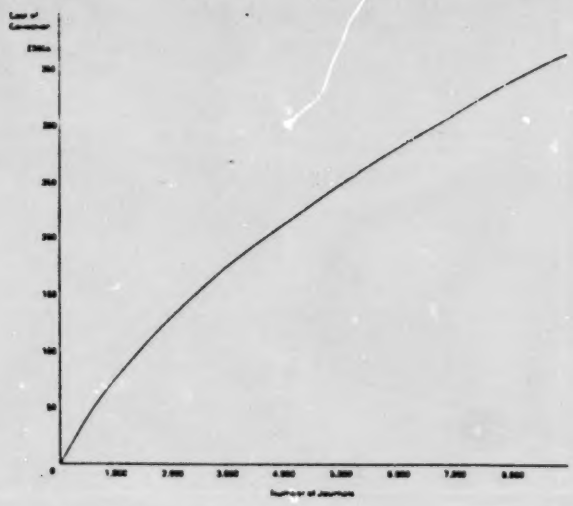

Figure 2
Hypothetical relationship between acquisition cost and size of a core collection of journals

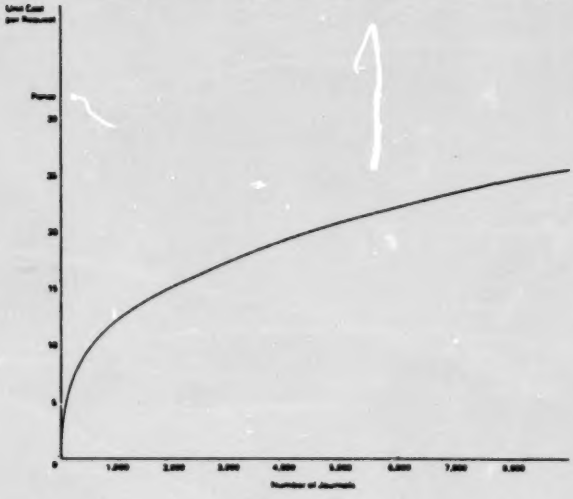

Figure 3
Hypothetical relationship between unit acquisition cost per request and size of a core collection of journals

Before drawing conclusions, I should like to mention briefly a few other considerations that are important for an efficient core collection. First provision will need to be made not only for photocopies but for loans, because whole issues will sometimes be required, and because important illustrations may not copy well.

Secondly, decisions have to be made on binding: whether or not to bind at all, and whether to bind in issues or in volumes (volume binding can make copying difficult and loans expensive). Thirdly, the arrangement and organization of the collection for speedy service are other matters that require careful consideration.

While the concept of core collections is probably sound in nearly all countries, its application is very difficult. Bibliometric analyses may yield a few clues, but it would be very dangerous to use them as more than a rough indicator. Lists of journals in most demand in other countries, especially if they are comparable in many respects, may be useful guides if allowance can be made for different language and subject biases. Much the best way to identify core lists is to analyse actual interlending demand in the country in question, but this may be hard to do in a decentralized system and its requires a fair volume of demand to be valid. Developing countries therefore could not use this method. The analyses must also be as recent as possible, because of probable shifts in the nature of demand.

The general characteristics of core collections are unlikely to vary greatly between countries. They will consist predominantly of scientific, technical and medical journals, where demand is not only greatest but most urgent, where back runs do not need to be so long, and where the greatest and most immediate impact on service to users can be made.

Once a collection is set up, it can be developed according to demand. However, to do this it must either be large enough initially to attract a high percentage of demand including demand for journals not held, or it must be closely linked with a national switching centre which itself receives and channels a high proportion of demand.

If a few more countries established core collections and analysed demand on them, a body of comparable data could be accumulated that could prove useful in the future, especially if substantial similarities were shown once obvious allowances had been made for national variations. Paradoxically, developing countries, precisely because they could not afford large core collections, might find it easier to establish minimal core collections (say 500-1,000 journals), since it would be easier to reach a consensus on these than on journals lower down the list.

These conclusions may seem negative. Rather, they should be seen as cautious. It is much better to proceed with the development of core collections in full knowledge of the problems and difficulties than to use inadequate data. Until more data on interlending demand are available (especially on demand in a number of different countries) it is difficult to see how much further progress can be made, but the benefits of core collections are potentially great enough to provide good motivation for further relevant studies.

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Interlibrary Lending Network Planning in Canada

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ABSTRACT

This paper discusses planning for interlibrary lending in Canada in the context of an evolving decentralized and open Canadian library network. After describing the distinctive geographical, political and cultural features of Canada which affect interlending, it gives a brief overview of the present situation and then reviews current plans and planning mechanisms. Interlending in Canada is in a very dynamic period and the paper concludes with a glimpse of how open systems interconnection and other new technologies may affect the Canadian interlending scene in the future.

I. Canada: The Geographical, Political and Cultural Setting

There are a number of factors, geographic, political and cultural, which have a direct effect on the Canadian interlending network, and particularly on national planning. [1] The first and most obvious factor is geography. Canada is an enormous and largely uninhabited country. A population of only 24 million stretches in a thin line across 7,500 kilometres of the North American continent. Most of this population is concentrated to the south along the American border but library services must also be provided to the scattered communities of the far North. This poses a tremendous problem of communication and transportation and a need for equalization of these costs. Five different time zones complicate the provision of national services. These problems can be greatly alleviated by electronic mail and other new communication technologies; they are less easily solved in relation to actual physical delivery of books and other materials. Mail service in Canada, as in many other parts of the world, has deteriorated in the last decade; hence other methods of document delivery become of prime concern.

On the political and jurisdictional level, Canada is a federal country composed of ten provinces and two territories with great variations in area, population, resources and in cultural traditions. In Canada, at the present time, the prevalent attitudes favour regionalism and decentralization. There are five regions in Canada, six if the northern territories are considered: the Atlantic region made up of four provinces varying in population from 120,000 to 840,000; Quebec; Ontario; the Prairies with three provinces; and British Columbia on the Pacific coast. It should be noted that the strong regional feelings of the Atlantic and Prairie provinces are somewhat fragmented by separate provincial jurisdictions. Networking and cooperation on an official basis mean dealing with a number of jurisdictional levels; federal, provincial and municipal, as well as with a multiplicity of separate government departments. According to the Canadian constitution, education, including libraries, is a provincial matter. There is no federal department of education or of culture. Federal involvement in areas of education such as libraries is a politically sensitive issue and the situation in each province varies. Libraries of universities and other post-secondary institutions generally report to departments of higher education, school libraries to departments of education, public libraries to departments of recreation, culture and youth, and provincial government libraries to a variety of departments. There is no consistency in the names or mandates of the estimated forty to fifty provincial departments concerned with libraries. Thus networking in Canada is most effective when done through voluntary, informal or non-governmental channels and is, perforce, decentralized.

On the cultural plane, Canada is officially a bilingual country but also one with a strong multicultural emphasis; not a melting pot, but a collection of ethnic communities proud of their various heritages. This affects library collections and services. The need to access data bases and to provide services in two languages complicates systems development. We are also considerably overshadowed by our very big and very good neighbor to the South, the United States of America, and in terms of library networks and interlending,

there is a long-standing tradition of direct borrowing back and forth across the Canada/U.S. border.

As far as Canadian publishing is concerned, it is active and healthy, although domestic imprints are greatly outnumbered by English and French publications from the U.S.A., Great Britain and France. Canadian imprints make up a very small proportion of the collection of a Canadian library.

II. Present Interlending Situation in Canada

The basis of a successful interlibrary loan network in any country is its combined library collections. Libraries' collections in Canada are not comparable to the great American and European ones. The National Library of Canada is very young, only twenty-nine years old, and does not have extensive holdings. It is gradually developing a comprehensive collection of current and retrospective Canadiana; its other collections in the social sciences and the humanities, except for a few specializations, are not developed in-depth. The strongest collections are those of the Universities of Toronto, British Columbia, Alberta and McGill. There was a considerable growth in the number of universities in the 1960's; university and college libraries in 1959/60 numbered 31, in 1979/80, 105. Because of the provincial responsibility for education, there is no nationwide rationalization of university curricula. Therefore, a related rationalization of library collections on a nationwide scale is difficult, although there is increasing specialization, cooperative acquisitions and other sharing arrangements. However, Canada is far from being self-sufficient in library collections, consequently interlending is vital.

There are no central lending collections in Canada as such. However, although not styled as a lending centre, the Canada Institute for Scientific and Technical Information (CISTI) acts as a lending centre, having very strong and comprehensive collections of journal and report literature supported by an acquisitions budget of $6 million and with holdings of 33,650 journal titles, 600,000 technical reports, and 300,000 monographs. CISTI filled 75% of the requests which it received last year from its own collections, a total of 150,000 documents. The National Library, although it has a general mandate, concentrates, with the exception of Canadiana, on the social sciences and the humanities; its present acquisitions budget, ($1.8 million), is not sufficient for it to act as a lending institution on a level with CISTI. This results in an unequal situation as regards science and technology and the social sciences and the humanities. The National Library receives 12,000 current Canadian and 5,500 current foreign serial titles, and serials subscriptions have been increased steadily especially in the last three years. The Library now fills from its own collections, 30% of the location requests for interlibrary loan which it receives annually, a total of about 40,000 documents last year.

The National Library operates two services which support resource sharing: the Canadian Book Exchange Centre receives materials which are no longer required by Canadian libraries (a total of 2 million items last year and redistributed 700,000 in the same period); the Multilingual Biblioservice

acquires foreign language books and, by arrangements with provincial library services, places collection of these books in public libraries on long term loan. This service now distributes publications in 27 languages. In addition, the National Library undertakes surveys of library collections by subject, thus helping to evaluate the totality of library resources in the country and to identify strengths and weaknesses so that national planning can proceed.

Interlibrary lending is largely decentralized in Canada. Individual libraries decide how and where to locate and borrow items. There are no total interlending statistics for the country because, in addition to using CISTI and the National Library as sources of locations and of documents, libraries use other location tools and borrow directly from one another. They also request materials directly from American libraries and use, in some cases, foreign lending centres, such as the British Library Lending Division at Boston Spa (220 registered Canadian users obtain 5,000 items annually) and the Center for Research Libraries (CRL) in Chicago. The latter acts as a cooperative acquisition and lending centre for its members and plans to expand its collections and clientele; hence it may develop into a de facto North American lending centre. Seven Canadian university libraries are now Center members.

Interlending in Canada is usually considered as a number of separate processes: creation and maintenance of location tools such as union catalogues and lists; location services, that is finding out where an item is held; and document delivery, the actual supply of the required item. All these steps must be supported by a communication system for transmitting interlibrary loan location and borrowing requests.

To turn first to the location tools, union catalogues and lists are maintained centrally on a level of Canada-wide coverage by the National Library and CISTI. However, these efforts have always been supplemented and, in part duplicated, by a variety of provincial, regional and local tools. With automation, the situation has changed radically over the last decade.

To consider first union catalogues, the National Library has a mandate to produce a Canadian Union Catalogue and to provide location services based on it. A union catalogue on cards was begun in 1951 by filming the catalogues of major libraries across the country. These libraries then sent in accessions on cards to keep the Union Catalogue up-to-date. At its height, the manual Canadian Union Catalogue contained 13.5 million cards representing 4.5 million titles, and received 1.5 million accessions annually from over 200 Canadian libraries. Like other huge card catalogues, it was impossible to keep the filing up-to-date. Although the card catalogue has been consolidated into 725 drawers, it would need considerable editing to eliminate duplicates before it could be microfilmed. The alternative of conversion to machine-readable form is equally daunting.

On April 1, 1980, the National Library closed the manual Union Catalogue and began to input card accessions to its on-line library management system, DOBIS. The number of reporting libraries was considerably reduced because of

a policy of not duplicating items contained in the data bases of Canada's on-line bibliographic utility, the University of Toronto Library Automation Systems (UTLAS), of which more will be said presently. At the present time 420,000 accessions annually are received on cards from more than 100 libraries and input via CRT terminals directly to the National Library's DOBIS data base. As Library of Congress, CONSER and Canadian MARC tapes are regularly added to the data base, which now contains over 2 million records, in many cases union catalogue accessions can be matched to existing records so that only the symbols for holding libraries need to be added. The present match rate is 65.2%, and over 900,000 holdings have been added. In addition, 130,000 new union records have been created. Holdings are also added directly to the DOBIS data base by CISTI, the Library of Parliament and the seven other federal government libraries which use DOBIS for their cataloguing. In addition, the Nova Scotia Provincial Library which has operated a manual provincial union catalogue since 1950, is beginning a pilot project to input Nova Scotia holdings directly into DOBIS. Previously, the Provincial Library had sent the National Library accession cards which located an item to the province only, not to the individual library. This national-provincial arrangement existed only with Nova Scotia because of the comprehensive nature of its union catalogue and the location service based on it provided by the Provincial Library. Now the manual arrangement is being replaced by a similar automated arrangement.

In addition to the Canadian Union Catalogue, now incorporated into the National Library's DOBIS data base, there is another larger on-line file of national scope, namely the data bases of the University of Toronto Library Automation Systems (UTLAS). UTLAS operates in a quasi-commercial manner and is used for on-line cataloguing support by over 600 Canadian libraries of all types. Developed as a cataloguing support system, UTLAS can also be used as a union catalogue, and the National Library decided not to input records of UTLAS users to the Canadian Union Catalogue. The National Library uses UTLAS on-line as well as DOBIS to search for locations. At first, UTLAS was difficult to use for this purpose as it was not a true union file and thus multiple searching of individual files was required. Now UTLAS has developed a search module, known as REFCATSS, making union catalogue, or location searching much more efficient.

In addition to nationwide union catalogues, there are a number of provincial union catalogues, notably, the Nova Scotia catalogue now continued on DOBIS, the Saskatchewan Union Catalogue which covers public libraries in the province and which is now closed and continued in part on UTLAS, and a recent and interesting development, the British Columbia Union Catalogue (BCUC) on microfiche. BCUC covers university, college and some public libraries in the province and aims at retrospective conversion of the holdings of its participants. Cataloguing is presently done on UTLAS which produces the COM catalogue. BCUC contains over 800,000 records and is, of course, available on-line on UTLAS as well as on fiche. It is planned to acquire an on-line system in the province to take over cataloguing support and union catalogue production. It appears at present that the catalogue may not become comprehensive for all types of libraries in the province. Nevertheless, BCUC is an extremely useful

project realized by a provincial consortium which produces a COM union catalogue from records input by individual libraries which use the same bibliographic utility for their cataloguing.

In general, the union catalogue situation on the provincial level is as follows: there was only one comprehensive provincial catalogue, that of Nova Scotia. A number of provincial library services have or had card catalogues for public libraries; in some provinces there are a number of regional public library catalogues. Many card catalogues are now being replaced by COM or computer-produced book catalogues; these, in many cases, are produced by UTLAS which the contributing libraries use for their cataloguing. In a number of instances, regional public libraries have their own mini-cataloguing systems which produce regional book catalogues.

These regional products are very useful within their regions but are too numerous to be feasibly searched on a national basis. In addition to the manual Canadian Union Catalogue for older material, in the future there would appear to be general concentration on three large on-line systems, DOBIS at the National Library, UTLAS, and the future British Columbia system, supported by a number of smaller, less comprehensive systems.

The situation concerning union lists of periodicals is similar, but more stable and developed. CISTI's Union list of scientific serials in Canadian Libraries has been automated since the early 1960's, includes 60,000 titles and covers the holdings of 293 libraries. It includes as well the 33,650 titles held by CISTI itself. The 9th edition appeared in printed format in December 1981. It is also accessible, as is CISTI's own in-house serials list, on CISTI's CAN/OLE on-line search system, which has 350 users from coast to coast. A CAN/DOC messaging system permits users to order from CISTI on-line the documents or journal articles found in information retrieval searches on CAN/OLE. CISTI has participated in DOBIS development with the National Library and is in the process of transferring both its in-house and union list of serials to DOBIS for record creation and maintenance, thus the union list will be available on two on-line systems.

By contrast, the situation in the social sciences is less comprehensive but is improving. The National Library, using DOBIS, produces the Union list of serials in the social sciences and the humanities held by Canadian libraries. From the serial records with locations attached in DOBIS, which includes all National Library holdings, about 25,000 titles have been selected for the union list. The union list is being issued on COM microfiche twice a year and when all titles in the old manual Union Catalogue of Serials have been transferred to DOBIS, a print edition will likely be issued. It is also planned to mount this union list on CAN/OLE for wider dissemination. With both CISTI and the National Library using DOBIS, it would be possible in the future, if desirable, to produce a single union list covering all subjects, in either printed or microfiche format.

Canada-wide location services based on union catalogues and lists are provided by the National Library and CISTI. Some provincial library services

provide locations based on their own catalogues or on access to UTLAS, especially for public libraries. The Nova Scotia and Saskatchewan Provincial Libraries will also search DOBIS beginning later this year. Purchasers of the BCUC COM catalogue can search for locations in British Columbia libraries; users of UTLAS can do their own on-line searches. Thus location searching is becoming more decentralized, but CISTI and the National Library continue to perform very substantial location services for all types of Canadian libraries and, in the case of CISTI, also directly for individuals and institutions, particularly in the business and industry field, without the intermediary of a library. This appears to be the trend of the future.

CISTI receives 200,000 location or document requests annually by mail, telex, and telephone. The CAN/DOC messaging system accounted for 35,000 requests last year. CISTI also receives requests via electronic mail although the volume to date represents only a very small percentage of the total. It fills 75% from its own collection, mostly journal articles and technical reports and chiefly by means of photocopies. The National Library receives 139,000 location requests per year, 60% by telex, 20% by mail, and 20% by telephone. It is beginning this year to experiment with electronic mail. It fills 30% of these requests from its own collection, of which 20% are for serials (chiefly filled by photocopies) and 70-75% for monographs. Of the location requests received by the National Library, 43% are from academic libraries, 27% from public libraries and 22% from government libraries. CISTI and the National Library are the largest net lenders in the country. In a study published in 1975, the two national libraries accounted for 21% of the items loaned.[2] While this figure may not accurately reflect the present situation, it is apparent that there is a large volume of interlending traffic which does not pass through either of the national libraries.

In 1981, the National Library introduced a three level location service, in response to users' priorities. At the first level, no verification is done and only standard location tools are searched, principally the manual union catalogue, DOBIS and UTLAS. The turnaround time objective for this level of service is 24 hours. This was not initially realized as a result of the larger than expected volume of requests received for this type of search. However, resources were reallocated and the response time is currently 2 days.

The second level comprises verification as well as location searches using standard verification sources and all available Canadian location tools, including miscellaneous Canadian library catalogues and union lists. The projected 5 day turnaround time for level two requests has been realized without difficulty.

The third level is an in-depth search which attempts to locate the item anywhere in the world. An extensive verification and location search is conducted using all available sources for Canadian and non-Canadian locations. Subject bibliographies, domestic and foreign data bases and issuing agencies are consulted and negotiations are underway with OCLC for search-only access. If the location search is unsuccessful, the publisher's address or a similar

title is suggested. A status report to the requestor is issued after 30 days if necessary. The projected turnaround time of one month is being met. Seventy percent of level three requests are from academic libraries and 20% of these are for foreign language materials. Over 96% of these searches are satisfied with either locations or suggested sources being supplied.

Document delivery in a country the size of Canada is a problem that is being partly solved by a number of truck or air/truck delivery systems. The first of these systems was developed by universities in Ontario and Quebec. The Ontario Inter-University Transit System (IUTS), begun in 1967, is a truck service covering 15 Ontario universities all located in the southern part of the province with an air courier link to the two more northerly and isolated universities. It circulates around the province in 24 hours so that items can be transferred from any university library to another in two days. In 1981, 75,000 loans were carried by IUTS. The Quebec PEBUQUILL system (Prêts entre bibliothèques universitaires Québec University Interlibrary Loan), begun in 1970, covers all universities in the province by truck in 24 hours and handled 100,000 items last year. The two systems transfer items between one another at the National Library in Ottawa and also stop at CISTI. This arrangement covers the national libraries and universities of two provinces. A Library Delivery Service (LDS) also covers all federal government and some university and special libraries in the national capital region and links to both IUTS and PEBUQUILL. This service handled almost 150,000 items in 1981/82.

In September 1979, CISTI began a pilot project with Alberta. Material was sent by air courier to a drop-off point in Calgary and distributed locally by truck. The example of this successful project, further motivated by the frequency of Canadian postal strikes, has now led to a number of air/truck arrangements by both CISTI and the National Library. In each case there must be a willing provincial, regional or local sponsor at the other end which will assume responsibility for the truck delivery. CISTI now has these arrangements with eight cities or provinces, the National Library with four. These services are likely to increase. A pragmatic approach like this always works better in Canada, as it bypasses a great many jurisdictional problems.

To summarize the present interlending situation in Canada is difficult. Owing to new technological developments, interlending is in a very rapidly changing state. There is a strong central lending collection in science and technology; there are widely used central federally-supported location services; union lists of serials are created and maintained centrally; union catalogues, by contrast, are becoming increasingly decentralized in terms of both input and access; UTLAS is playing a large role both in on-line access and in the production of regional book or microfiche catalogues. Air/truck document delivery arrangements are developing rapidly.

Interlibrary loan policies also vary in Canada. National Library policy, as far as the development of union catalogues and lists and location services based on them, has always been to try to cover adequately, but not necessarily comprehensively, all geographic regions and types of libraries. This scope and coverage is necessary because university libraries tend to lend to and

have special arrangements with other university libraries, and public libraries with other public libraries, particularly in their own province or region. The National Library also plays an equalization role, ensuring services to libraries which do not have direct access to on-line systems and inputting records from libraries which are not automated but which have unique collections. The National Library is willing to act as a non-exclusive focal point for international lending, with the exception of U.S. loans. Although the National Library, in the third level of its location service, will attempt to locate items not found in Canada in American libraries, it would not be expeditious for the National Library to handle all Canadian/U.S. loan traffic as the volume is too large. Direct transborder regional arrangements are of long standing and are much more efficient. Libraries in Atlantic Canada have traditionally dealt with New England libraries; British Columbia and Alberta libraries have always depended heavily on and contributed to U.S. Pacific area libraries. The National Library encourages Canadian libraries to try to locate an item first in Canada before going to American libraries, or as a last resort, to the Library of Congress, especially as recent discussions with the Library of Congress indicated that 25% of L.C.'s location requests come from Canadian libraries.

Interlibrary loan policies in Canadian libraries are largely based on the Canadian interlibrary loan code promulgated by the two national associations, the Canadian Library Association (CLA) and the Association pour l'avancement des sciences et des techniques de la documentation (ASTED). Published in 1980, the CLA/ASTED Interlibrary Loan Code[3] was "developed to reflect and guide interlibrary loan practice in Canada". The code outlines the purpose of I.L.L. and delineates the rights and responsibilities of borrowing and lending libraries. Emphasis is placed on "the belief that access to information is in the general interest". Two complementary documents are the CLA/ASTED Interlibrary loans procedures manual[4] and the Directory of interlibrary loan policies & photocopying services in Canada.[5] Local, provincial or regional codes, sometimes limited to specific types of libraries, also cover some areas. Associations of university libraries exist for the Atlantic region, Quebec, Ontario, the Prairie region and British Columbia and may have their own codes for lending among themselves. At the governmental level, in 1980, Alberta and Saskatchewan signed the first formal Inter-Provincial Library Co-operation Agreement in Canada thus facilitating interlibrary loans between the two provinces.

Charging for interlibrary loans, beyond the mere cost of photocopies, was reluctantly introduced in 1975 by several net lender university libraries. As they did not receive additional funding for serving anyone beyond their own specific clientele of faculty and students, it was felt that in a time of decreased budgets they could not continue to support a large external burden of loans. Charging has acted largely as a deterrent rather than as a money-making or cost-recovery device. Libraries which charge frequently make exceptions; for example, a university library will not likely charge other universities in the same province, network or consortium. The initiation of charging by some libraries threw the interlibrary loan picture in Canada into temporary chaos. The ranking of net lenders changed and libraries began to

look around for the best ILL bargain. Proposals were made by the Canadian Library Association for federal government reimbursement of net lender libraries. A study by a federal government interdepartmental committee found that the total overall amount transferred would be out of proportion to the accounting costs which would ensue. Moreover, the net lender issue overlooked the high cost of borrowing and the fact that net borrowers are the less strongly supported libraries. The charging issue is quiescent at present. The number of libraries which charge are still in a minority and borrowing libraries have found alternate sources for many of their needs.

The charging issue has raised the question of a national lending centre and the need for such a centre is related to a number of factors, as yet not clearly defined. As a result, the first network priority, by national concensus, is to put into place a national bibliographic and communications network before proceeding to the resource sharing network itself; basically, UBC before UAP. The bibliographic and communications network and the resource sharing network which it will support are both described in a report prepared by the National Librarian following a review of the role of the National Library.[6]

Among the questions to be studied as preliminary to a national lending centre is that of copyright. New Canadian copyright legislation has been under intensive study and development for a number of years and will likely include provision for collectives of copyright owners (authors and publishers). Because of the distances involved, effective document delivery is vital in Canada and the electronic journal and electronic transfer of full text are therefore of great importance. The rate of development and full effect of these elements are as yet unknown, but are related to the lending centre concept. At the present time, the National Library is gradually increasing its holdings of journals in the social sciences and the humanities and is working on electronic messaging and on document delivery experiments. The need for, nature and type (first or last resort) of a lending centre remain as somewhat controversial issues. A lending centre would likely be developed for serials, official publications and grey literature, in that order, and not for monographs.

III. Planning for Interlibrary Loan in Canada

Planning for interlibrary lending in Canada is done at various levels. At the national level, both the National Library and CISTI have advisory mechanisms. CISTI is part of the National Research Council which is advised in this area by the Advisory Board on Scientific and Technical Information (ABSTI). The National Library Advisory Board now has three committees of which one, the Bibliographic and Communications Network Committee is concentrating on the technical infrastructure to support transfer of bibliographic information. A second, the Resource Network Commitee, is concerned with resource sharing, including interlibrary loan as one means of achieving this. This Committee is taking a broad approach to resource sharing. Its mandate covers surveys of library resources; the identification maintenance and preservation of national resource collections; cooperative acquisitions; alterna-

tives to interlibrary loan, such as reciprocal borrowing privileges and the provision of fee services to individuals and businesses which are not direct clients of a library; the role of the private sector in information; and the need for central lending collections.[7] The Resource Network Committee is composed of experts appointed on the advice of library and academic associations across the country. It has fifteen members and attempts to be representative of various types of libraries, geographic areas and both official languages. It reports to its parent body, the Cabinet-appointed National Library Advisory Board, which, in turn, advises the National Librarian. The committee is the latest in a series of planning mechanisms used by the National Library and was proceeded by a Canadian Union Catalogue Task Group which reported in 1976 and recommended a bibliographic and a resource sharing network including the automation of the union catalogue.[8]

The Resource Network Committee, at its initial meeting in May 1981, decided to begin by studying interlibrary lending. It was agreed that this was an area in which concrete problems could be identified and to which pragmatic solutions and improvements could be made and implemented in the short term. The last major nationwide study of interlending in Canada was undertaken for the National Library by Basil Stuart-Stubbs and staff of the University of British Columbia Library in 1974 and preceded a number of major changes affecting interlending.[9] Hence, the Resource Network Committee requested that an interlibrary loan and document delivery study be undertaken and in late 1981, the National Library of Canada contracted the study with the Centre for Research in Librarianship of the University of Toronto. The study was premised on the fact that there have been considerable changes in the conduct of interlibrary loan in recent years. Among these changes are scattered imposition of loan charges, the increased use of on-line bibliographic systems, COM union catalogues, alternative delivery systems, budget constraints and dynamic networking arrangements. The objectives of the study are to gain a nation-wide perspective on policies, practices, problems and possible solutions and will be qualitative rather than quantitative concentrating on the nature, scope and extent of interlibrary loan and document delivery in Canada. Information will be sought on the impact or effect of changes in interlending such as lending policies, charging, verification work, telecommunications, and document delivery systems. This data, once gathered and analysed, will provide a comprehensive national perspective, as well as determining areas requiring further examination. The report will be submitted in late fall 1982.

In addition to planning and studies at the national level, a great deal of similar activity is carried out at the provincial level. An extremely detailed study of interlibrary loan, undertaken by the Comité des bibliothèques de la Conférence des recteurs et des principaux des universités du Québec (CREPUQ), is just being completed. This study, carried out by Marjorie Goodfellow, will give detailed ILL statistics and ILL costs for Quebec university libraries. The National Library has contracted with CREPUQ to obtain the results, which will complement the Resource Network Committee's study. Other associations of university librarians are concerned with interlending in their provinces and the British Columbia Union Catalogue was a

result of major planning at the provincial level. A recently completed network planning study for Alberta is now being actively discussed. A major public library review is underway in Ontario and a Network Development Office for public libraries now resides in the Libraries and Community Information Branch, Ontario Ministry of Culture. The directors of public library services in each of the ten provinces and the two territories, who have formed the Provincial and Territorial Library Directors' Council, are presently considering their role in a decentralized library network and how they can relate, through the provincial Ministers of Culture, to federal government projects of the National Library and the Department of Communications. Thus a wide variety of planning and analysis takes place, from official provincial government levels to cooperative university library projects. This reflects the multi-jurisdictional and decentralized nature of Canadian society. There is a concern at all levels to eliminate unnecessary duplication in studies and the National Library continuously monitors library networking in Canada for this reason.

The Future: An Open and Decentralized Network

The idea of a library network in Canada has undergone a radical change in the last couple of years, as a result of technological innovation. Fortunately, the latest technology is moving away from large, unrelated, monolithic computer systems with massive central data bases towards the interlinking of a wide variety of systems of different sizes and types in an open systems environment. This is obviously better suited to the Canadian situation and reflects a trend to mini-computer systems.

Network planning at the National Library is being conducted in the framework of the Open Systems Interconnection (OSI) model of the International Organization for Standardization (ISO). OSI denotes the use of standardized procedures for the on-line exchange of information. These will enable emerging and existing library systems, utilizing different and incompatible computer equipment and programmes, to interchange bibliographic data.

The National Library's Office for Network Development is the focal point for the planning, research and coordination of a nation-wide decentralized network for the interchange of bibliographic information and works closely with the federal Department of Communications on technical matters concerning telecommunications. Beginning in the summer of 1982, the National Library will coordinate and participate in a one-year pilot project to test new telecommunications services for bibliographic data interchange. The Office for Network Development is coordinating a Bibliographic Interest Group of six pilot project participants including CISTI and four university libraries. This group is one of several common interest groups using the facilities of the iNet Gateway trial being mounted by the Computer Communications Group of TransCanada Telephone Systems. iNet is conceived broadly within the framework of OSI and will test certain access support facilities required in an open networking environment. The participants will communicate through the use of Datapac, testing the value-added network services of iNet, and a series of enhancements to the independent host systems.

More specifically, pilot projects will be conducted by the Bibliographic Interest Group to develop and test activities such as computer interfaces to the network including network directories; derivation of bibliographic data from diverse data bases; electronic messaging for interlibrary loan; and prototype automatic data transfer between disparate bibliographic systems.[10]

In addition to the iNet trial, the Task Group on Computer/Communication Protocols for Bibliographic Data Interchange, appointed by the National Librarian and consisting of library systems and telecommunications experts from across Canada, is charged with developing the specifications for application level protocols within the context of the OSI model. These protocols (standard procedures), including a common command language and file transfer, will facilitate data interchange for specific bibliographic applications, such as interlending.

All of this work will support the development of the technical infrastructure for interlibrary loan, the linking of data bases for location of items in Canadian libraries, with eventual links to international systems, and the telecommunications and messaging systems for delivering interlibrary loan requests and eventually, in many cases, the full text itself.

The open system network will be made up of information providers and information seekers. To facilitate their interaction, a common command language and common standard search protocols are essential. Work towards this end, at present specifically orientated towards interlending, is being undertaken by the ISO/TC 46/SC 6/WG1 on the development of a data element directory for the interlending application. This working group is chaired by E. Buchinski of the Office for Network Development, National Library of Canada.

The objective of a data element directory is to clearly name and define all data elements which are used in a given application. It also indicates how a given data element is represented, i.e., whether it consists of alphabetic, numeric or special characters, comprises a fixed or stated maximum number of characters, and whether it must be recorded in accordance with specific ISO standards, e.g. ISBN. In automated applications, a data element directory could be used to document all the data elements needed for a particular application. In manual applications, such as paper ILL forms, the directory could be used to standardize the naming conventions and descriptive notes associated with "boxes" on the form.

A useful application would be to utilize the data element directory to develop a message directory, an ISO standard that would identify which elements are mandatory and the order in which these data elements must appear within specific ILL messages, e.g. an ILL renewal message, ILL cancellation message, or ILL recall message. Thus, a data element directory becomes a useful tool for standardization of international as well as national data interchange. The second draft of the data element directory was reviewed by the ISO Working Group in May 1982. This draft incorporates 118 data elements found on standard national ILL forms, utilized by 19 of the 26 ISO/TC46 member countries. From the point of view of interlibrary loan, it is fortunate that the Working group is beginning with this application.

At the same time, the Canadian iNet Project will be testing ILL electronic messaging. A standard ILL message structure has been devised for the Envoy 100 electronic mail system. It is expected that the ISO and iNet efforts will be complementary.

Many questions remain to be answered regarding the effect of open systems interconnection on library applications and on interlibrary loan in particular. These include the cost of software development to allow many different systems to interconnect. In the case of location data bases, the ability to search a number of decentralized data bases might prove less effective than searching one central data base. A multiplicity of data bases may cause confusion. Determining and choosing the best route for a particular request may prove costly. Although there would be a central directory of data bases and services, there might be a need for a central index to data bases. This is yet to be determined. It is hoped that standard search protocols will make searching multiple data bases transparent to the user and automatic data base selection may be developed so that libraries can choose in what order a number of data bases would be searched.

Open systems will not be limited to libraries. In the iNet trial, banks, broadcasting corporations, petroleum companies, travel agencies, legal services, information service centres and brokers will also be involved. This will mean a greater interaction between the public and the private sector. Libraries will confront the marketplace values of commercial institutions and this may lead to changes in library policy towards charging and towards users. A small company without a library may, through iNet, borrow directly from a library iNet participant. Hence, in an open systems environment, the way in which libraries deal with their users may change.

As a result of the iNet trial, the National Library intends to evaluate the use of this technology for libraries and also to determine those services that need to be provided centrally for a Canadian library network, and the directories, messaging systems and other protocols that will be required.

The immediate effect of this new technology is as yet unknown but it would appear to present the library and the user with a multiplicity of choices. Terminals will be used to access a wide variety of data banks for verification and transfer of bibliographic data and for location of specific items. The data bases searched will be not only in libraries but also in information and documentation centres, both public and for profit. Publishers data bases may also be available for searching and Canadian publishers are establishing a Canadian Telebook Agency for on-line ordering. If this is successful, libraries may choose more often to buy rather than borrow. Electronic mail and messaging systems will be used to transmit loan requests and in the future, probably the items themselves, especially in the case of shorter texts like journal articles. Videotext systems, like Telidon, Prestel and Antiope, and home television and cable hook-ups may allow users at home to search the catalogues of several local libraries and to reserve books. The library collections themselves will change: libraries and individuals may remotely access optical disc and microform stores located in central clearing houses or in publishers' or copyright holders' collectives to obtain electronically the text of the required item. Alternate forms of scholarly communication, such as

deposit of learned papers and on-demand electronic dissemination, will affect the collections which libraries need to hold on-site. This, in turn, may partially obviate the need for the development of central lending collections, particularly for serial or shadow literature; electronic document delivery would appear to be much less useful for larger monographs. The private sector may take over many of the document provision functions now being carried out by libraries.

National libraries, to play their part in UAP, will have to study how legal deposit can continue to ensure full coverage of the national published heritage. The meaning of "publication" will be changed, as a publication will no longer necessarily be distributed as a discrete physical item. Many different media will be involved: print, microform, video and optical disc, sound recording and digital data in numerous forms. An archival problem will be how to preserve data at various stages or "editions", as electronic data will be subject to constant update.

Because the whole situation is so fluid at present and there are so many unknown and unproved factors, Canadian network planning is trying to be as flexible as possible and to concentrate on the bibliographic, and telecommunications infrastructure, which will, in the future, support interlibrary loan among other applications.

The future trends forseen for Canada are relevant to many countries. First, library collections may become a smaller part of the total information resources which are available. The issue may no longer be strictly interlibrary loan because the user will, in some cases, no longer get the required item from a library but from a central clearing house or full text data base. Libraries will also tend to lend directly to individuals and institutions beyond their immediate clientele, previously defined as the citizens of a municipality, or the students or professors of an academic institution. More direct lending to a wider range of users is likely to lead to increased charging. Many Canadian university libraries now lend and provide other services to individuals, particularly within the business community, on a fee basis.

Secondly, the existence of many interconnected databases will spread the document provision and delivery burden around. This should be advantageous to the libraries which were overburdened before. There will be a wide variety of sources as well as systems to deliver them. This may be beneficial or prove a hindrance as choice is always time-consuming.

Thirdly, the private sector may play a greater role and the trend will be to commercialization. Libraries may be left with the provision of the older, less frequently demanded and bulkiest material. Funding for libraries to continue to provide this material may become critical if former library users go elsewhere for the more frequently used and easily handled material. Three factors will be critical: availibility, speed of delivery and cost.

Fourthly, there should be improved access with new modes of remote search and delivery. "User friendly" systems with multiple access points and Boolean combinations should prove an improvement on the traditional library catalogue, always more

logical to its creator than to its user. Document delivery will remain a problem for some materials which are too voluminous for transfer to optical or digital form or too costly for on-line transmission.

The new technology will gradually reshape the traditional products and services presently offered by libraries, further influenced by economic factors such as decreased availability of public funds. Some users may be willing and able to pay for quick and sophisticated value-added services; others may not. There is a danger that this may lead to a new information disadvantaged group, the very group which free public libraries were originally developed to serve.

However, I do not believe the impact of new technology, if we meet the challenge in time and with enough flexibility, will be all negative for libraries. If libraries using open network concepts can spread resource sharing and interlending more equitably and making the best use of the other sources of the information world, then they can concentrate on more sophisticated help to the user, the selection of the most relevant information to meet the need, thus avoiding the present danger that users will be swamped with too much material, much of which is not relevant or at a suitable intellectual level. In summary, resource sharing will continue, not always in the form of loans between libraries, but of a variety of information sources making the world's literature available to a wider range of users who will be no longer tied to a single source or institution.

FOOTNOTES

1. These factors are covered in detail in the paper, Canada: a voluntary, flexible network by Dr. G Sylvestre, National Librarian of Canada, presented to the IFLA General Research Libraries Division, August 1982.

2. Basil Stuart-Stubbs, Margaret Friesen, and Douglas McInnes, Interlibrary loan in Canada: a report of a survey, (Ottawa: National Library of Canada, 1976), p. 41.

3. CLA/ASTED Interlibrary loan code/ASTED/CLA Code du prêt entre bibliothèques, (Ottawa: CLA/ASTED, 1980), p. 1.

4. CLA/ASTED Interlibrary loan procedures manual/ASTED/CLA Manuel du prêt entre bibliothèques, (Ottawa: CLA/ASTED, 1981).

5. Directory of interlibrary loan policies & photocopying services in Canadian libraries: Compiled by the committee on the Directory of Interlibrary Loan Policies and Photocopying in Canadian Libraries, Information Services Section, Canadian Library Association, (Ottawa: CLA, 1978).

6. National Library of Canada. The Future of The National Library of Canada (Ottawa, 1979), pp. 57-65.

7. The mandate of the Resource Network Committee and the issues facing it are described in The Resource Network: major issues facing Canadian Libraries by Hope E. A. Clement (Ottawa: National Library of Canada, 1982), (Canadian Network paper, no. 3) appendix

8. Canadian Union Catalogue Task Group, Final report to the National Librarian of Canada, (Ottawa: National Library of Canada, 1976), pp. 2-4.

9. Stuart-Stubbs, B., op.cit.

10. Durance, Cynthia J., Pilot implementation of an open library network conception in Canada, Paper presented to the IFLA Section on Information Technology, August 1982.